



National Research University Higher School of Economics (HSE)

Curriculum

Field of study 09.03.04 Software Engineering

Educational Programme "Software Engineering"

Implementing unit: Faculty of Computer Science, HSE - Moscow

3 rd, 2024/2025 academic year

APPROVED

03.05.2024

Vice Rector

ROSHCHIN S.Y.

Signed with EDS

Length of Programme: 4 years

Years of Study: 2022/2023 - 2025/2026

Mode of Study: Full Time

Degree: Bachelor's degree

Block Code	Course	Subject type	Department	Credits	Total Academic Hours	Contact Hours	Allocation of Contact Hours				Additional Information
							1	2	3	4	
Degree Programme				60,00	2 280	622	152	152	164	154	
Data Culture				6,00	228	60	28	30		2	
1	External Examinations on Digital Skills. Final Level	C	отдел развития цифровых компетенций			2		2A			
2	Mathematical Methods for Data Analysis	C	Department of Big Data and Information Retrieval	5,00	190	56	28	28A			Online Course, Foreign language
3	Data Science, AI and Generative Models Independent Test. Advanced Level	C	отдел развития цифровых компетенций	1,00	38	2				2A	Online Course
Major				36,00	1 368	404	84	84	124	112	
Core Professional Block (Major)				23,00	874	292	56	56	96	84	
Core Disciplines 3 Year				4,00	152	60			32	28	
1	Software Quality Assurance and Testing	C	Department of Software Engineering	4,00	152	60			32	28A	
Core Disciplines fo C#				19,00	722	232	56	56	64	56	
1	Databases	E	Department of Software Engineering	5,00	190	56	28	28A			
2	Software Systems Architecture Design	E	Department of Software Engineering	5,00	190	60			32	28A	
3	Development and Analysis of Requirements	E	Department of Software Engineering	5,00	190	60			32	28A	Online Course
4	Software Engineering Economics	E	Department of Software Engineering	4,00	152	56	28	28A			
Core Disciplines for C				19,00	722	232	56	56	64	56	
1	Databases (part 2)	E	Department of Software Engineering	5,00	190	56	28	28A			

2	Compiler Technologies	E	Joint System Programming Department with Institute for System Programming of the Russian Academy of Sciences	5,00	190	56	28	28A			
3	Machine Learning	E	базовая кафедра ПАО Сбербанк "Финансовые технологии и анализ данных"	4,00	152	60			32	28A	
4	Functional Programming	E	Joint System Programming Department with Institute for System Programming of the Russian Academy of Sciences	5,00	190	60			32	28A	
Elective Professional Block (Major)				13,00	494	112	28	28	28	28	
Electives 3 year				10,00	380	112	28	28	28	28	
Electives Semester 1				5,00	190	56	28	28			
1	Program Verification	E	Joint System Programming Department with Institute for System Programming of the Russian Academy of Sciences	5,00	190	56	28	28A			
2	IOS Applications Development Basics	E	Department of Software Engineering	5,00	190	56	28	28A			
3	Applied Methods of Linear Algebra	E	Department of Mathematics	5,00	190	60	28	32A			
4	Design and Development of Smart Contracts for Blockchain Platforms	E	Department of Software Engineering	5,00	190	56	28	28A			
5	Fault-tolerant System Design	E	базовая кафедра Тинькофф	5,00	190	56	28	28A			
6	Game development in Unreal Engine	E	Department of Software Engineering	5,00	190	56	28	28A			
7	Spatial Data Management	E	Department of Software Engineering	5,00	190	56	28	28A			Foreign language
8	Functional and Logic Programming	E	Department of Software Engineering	5,00	190	56	28	28A			Foreign language
9	IoT Ecosystems	E	Department of Software Engineering	5,00	190	56	28	28A			Foreign language
Electives Semester 2				5,00	190	56			28	28	
1	Computer Networks	E	Department of Software Engineering	5,00	190	60			32	28A	Foreign language
2	Building Scoring Models Using Machine Learning Methods	E	Department of Software Engineering	5,00	190	60			32	28A	Foreign language
3	Design and Development of Decentralized Applications	E	Department of Software Engineering	5,00	190	60			32	28A	
4	Fault-tolerant System Design 2	E	базовая кафедра Тинькофф	5,00	190	80			40	40A	
5	Industrial iOS Development	E	Department of Software Engineering	5,00	190	60			32	28A	
6	Development of Intellectual Agents of Computer Games	E	Department of Software Engineering	5,00	190	60			32	28A	
7	Distributed Databases and Data Warehouses	E	Department of Software Engineering	5,00	190	60			32	28A	Foreign language
8	Distributed Computing	E	Department of Software Engineering	5,00	190	60			32	28A	Foreign language

9	Linguistic aspects in NLP context	E	School of Linguistics	5,00	190	60			32	28A	
Научно-исследовательский семинар, 3 курс				3,00	114						
1	Research Seminar "Cloud Services of the Mir Payment System. Business Technology Service Design"	E	Department of Software Engineering	3,00	114	48	14	14	20A		
2	Research Seminar "Introduction to Industrial Software Engineering"	E	базовая кафедра фирмы 1С	3,00	114	48	14	14	20A		
3	Research Seminar "Fuzzy Modeling"	E	Department of Software Engineering	3,00	114	48	14	14	20A		
4	Research Seminar "Cloud Technology"	E	Department of Software Engineering	3,00	114	48	14	14	20A		
5	Research Seminar "Development of Web Applications in JavaScript"	E	Department of Software Engineering	3,00	114	48	14	14	20A		
6	Research Seminar "Development of Cross-Platform Cloud and Mobile Applications"	E	Department of Software Engineering	3,00	114	48	14	14	20A		
7	Research Seminar "System Programming 1"	E	Joint System Programming Department with Institute for System Programming of the Russian Academy of Sciences	3,00	114	48	14	14	20A		
8	Research Seminar "Computer Vision Technologies"	E	Department of Software Engineering	3,00	114	48	14	14	20A		
9	Research Seminar "Data and Knowledge Management"	E	Department of Software Engineering	3,00	114	48	14	14	20A		
10	Research Seminar "Game Development Product Management"	E	Department of Software Engineering	3,00	114	48	14	14	20A		
Minor				10,00	380	152	38	38	38	38	
1	Minor	E		10,00	380	152	38	38A	38	38A	
English						2			2		
Examinations						2			2		
1	Independent English Exam	C	School of Foreign Languages			2			2A		Foreign language
Internship				8,00	304	4	2			2	
Project Internship				5,00	190	2				2	
1	Term Project 2	C		5,00	190	2				2A	
Professional Internship				3,00	114	2	2				
1	Work Experience Internship	C		3,00	114						
2	Technological Internship	C				2	2A				

Curriculum agreed:

Academic Supervisor Pavlochev N.A. 14.03.2024

Dean ARZHANTSEV I.V. 15.03.2024

Head of Centre for Educational Model Design LEPESHKIN I.A. 03.05.2024

* Subject type:

Compulsory course

Elective course

Optional course

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